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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,490	11/15/2001	Keiji Komoto	684.3260	7263

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EXAMINER

NOTE, JANIS L

ART UNIT PAPER NUMBER

1756

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,490

Applicant(s)

KOMOTO ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48,49,51,55-58,63,64 and 68-73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 48,49,51,55-58,63,64 and 68-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Nov. 4, 2004, has been entered.

2. The examiner acknowledges the cancellation of claims 54, 61, and 67, and the amendment to claim 48 filed on Oct. 7, 2004, which was entered on Nov. 4, 2004, as requested in the RCE. Claims 48, 49, 51, 55-58, 63, 64, and 68-73 are pending.

3. The "Amendment to the specification" section filed on Oct. 7, 2004, was held not to be in compliance with 37 C.F.R. 1.121 for the reasons discussed in the Advisory action mailed on Oct. 21, 2004, paragraph 1. Accordingly, the "Amendment to the specification" section filed on Oct. 7, 2004, was not entered.

The "Amendment to the specification" section filed on Nov. 4, 2004, has been entered.

4. The objection to the specification under 35 U.S.C. 132, set forth in the office action mailed on Jul. 7, 2004, paragraph 4, has been withdrawn in response to the amended paragraph beginning at page 91, line 11, of the specification, filed on Nov. 4, 2004.

The objection to the specification set forth in the office action mailed on Jul. 7, 2004, paragraph 5, has been withdrawn in response to the amended paragraphs beginning at page 94, line 27, page 108, line 6, page 188, line 23, page 190, line 5, page 192, line 24, and page 193, line 24, of the specification, filed on Nov. 4, 2004.

The rejection of claims 48, 49, 51, 54-58, 61, 63, 64, and 67-73 under 35 U.S.C. 112, first paragraph, set forth in the office action mailed on Jul. 7, 2004, paragraph 10, has been withdrawn in response to the amendment to claim 48, entered on Nov. 4, 2004. The amendment to claim 48 replaced the volume average particle size of the electroconductive fine powder from "0.8 to 5 μm " to - 0.8 to 3.6 μm ." Antecedent basis for the upper limit, 3.6 μm , is found at page 184, lines 13-14, of the originally filed specification.

The rejections of claims 48, 49, 51, 54-58, 63, 64, and 67-73 under 35 U.S.C. 102(e) over US 2002/0115012 A1 (Hashimoto), of claims 48, 49, 51, 55-58, 61, 63, 64, and 68-73

under 35 U.S.C. 103(a) over European Patent 1,128,225 A2 (EP'225) combined with US 5,728,800 (Ohba), and of claim 54 under 35 U.S.C. 103(a) over EP'225 combined with Ohba and European Patent 989470 A2 (EP'470), set forth in the office action mailed on Jul. 7, 2004, paragraphs 13-15, respectively, have been withdrawn. Hashimoto and EP'225 are not prior art to the subject matter recited in the instant claims. Applicants have perfected their claim to foreign priority under 35 U.S.C. 119 regarding the subject matter recited in the instant claims by the amendment to claim 48, entered on Nov. 4, 2004, replacing the volume average particle size of the electroconductive fine powder described supra. The verified English-language translation of the priority document, Japanese patent application No. 348,146/2000, filed on Aug. 6, 2003, provides an adequate written description of the subject matter recited in instant claims as required under 35 U.S.C. 112, first paragraph.

The rejection of claims 48, 49, 51, 54-58, 63, 64, and 67-73 under 35 U.S.C. 103(a) over US 6,081,681 (Nagase) combined with EP'470, set forth in the office action mailed on Jul. 7, 2004, paragraph 16, has been withdrawn in response to the amendment to claim 48, entered on Nov. 4, 2004, adding the limitation of now-cancelled claim 61. Claim 48 now requires

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that the charging member be a roller member, which has "a surface provided with minute cells providing an average spherical cell diameter of 5-300 μ m and a void areal percentage at the surface of 15-90%." Nagase teaches the use a "charging brush." Nagase does not teach or suggest the use of a charging roller member as recited in instant claim 48.

The rejection of claims 48, 49, 51, 54-58, 63, 64, and 67-73 under the judicially created doctrine of obviousness-type double patenting over claims 1-26 of U.S. Patent No. 6,576,387 B2 (Hashizume'387), set forth in the office action mailed on Jul. 7, 2004, paragraph 18, has been withdrawn in response to the amendment to claim 48, entered on Nov. 4, 2004, adding the limitations of now-cancelled claim 61, as described supra. The claims in Hashizume'387 do not recite the use of a charging roller as described in instant claim 48.

5. The examiner has determined that the term "electrostatic latent-image forming means" recited in the instant claims is a means-plus-function limitation covered by the 35 U.S.C. 112, sixth paragraph.

The only definition of the electrostatic latent-image forming means is provided in Figs. 2 and 3, and at page 159, lines 9-15, of the specification. Figs. 2 and 3 comprise "a

laser light **L** from a laser light source to form an electrostatic image." See the specification, page 110, lines 11-12. The specification at page 159, discloses that the "exposure means [to form an electrostatic latent image] is not limited to a laser scanning exposure means . . . but can be ordinary analog imagewise exposure means or other light-emitting devices, such as LED, or a combination of light source, such as a fluorescent lamp, and a liquid crystal shutter."

6. The examiner has determined that the following terms recited in the instant claims are not covered by 35 U.S.C. 112, sixth paragraph because such "means for" are modified by sufficient structure, material, or acts for achieving the specified function. See MPEP 2181.

(1) "developing means including a toner-carrying member for transferring a magnetic toner carrier on the toner-carrying member";

(2) a charging means for charging the image-bearing member, said means comprising "a charging member supplied with a voltage and abutted against the image-bearing member to form a contact nip with the image-bearing member";

(3) a transfer "means for electrostatically transferring the toner image on the image-bearing member onto a transfer member via or without via an intermediate transfer member"; and

(4) "developing means also functions as a means for recovering a portion of the magnetic toner remaining on the image-bearing member."

7. The following phrases and terms recited in the instant claims have been defined in the instant specification:

(1) The term "silicon-based" recited in instant claim 48 is defined as meaning "that the material comprises silicon as a principal element." See the specification, page 35, lines 17-18.

(2) The term "non-single crystal material" recited in instant claims 48 and 54 is defined as a material "principally in an amorphous state but can contain a minor proportion of microcrystalline or polycrystalline material." See the specification, page 35, lines 9-16.

(3) The term "% of isolated iron-containing particles" recited in instant claim 48 is defined in the specification at page 41, line 14, to page 44, line 4. The term "isolated iron-containing particles" is defined as "particles of iron or iron compound . . . isolated from magnetic toner particles." See the

specification, page 41, lines 15-18. The percentages of isolated iron-containing particles recited in the instant claims are defined as $100 \times \{(\text{number of atomic luminescence (AL) of Fe alone}) / [(\text{number of AL of Fe simultaneous with AL of C}) + (\text{number of AL of Fe alone})]\}$. See the specification, page 41, lines 22, to page 42, line 9. In the case of a magnetic toner particle comprising magnetic iron oxide particles, the specification at page 42, lines 10-17, discloses that the "simultaneous luminescence of carbon atom and iron atom means a luminescence from a toner particle containing magnetic iron oxide dispersed therein, and the luminescence of only iron atoms means a luminescence from an isolated iron-containing particle." In other words, the "percentage of isolated iron-containing particles" is the ratio of the number of iron-containing particles present in the magnetic toner that are not dispersed in the magnetic toner to the total number of iron-containing particles (i.e., the sum of the number of iron-containing particles dispersed in the magnetic toner particles and the number of iron-containing particles that are not dispersed in the magnetic toner).

(4) The term "average circularity" recited in instant claim 48 is defined by formula (2) at page 38, line 26. The determination of the average circularity is described in the

specification at page 38, line 9, to page 40, line 19, of the specification.

In the amendments filed on Aug. 6, 2003, Apr. 27, 2004, Oct. 7, 2004, and Nov. 4, 2004, applicants did not state that they disagreed with the definitions set forth supra.

19. Claims 48, 49, 51, 55-58, 63, 64, and 68-73 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-57 of US 6,596,452 B2 (Magome) in view of US 6,040,103 (Ohno), US 5,728,800 (Ohba), and European Patent 989470 A2 (EP'470).

Reference claims 35 and 36 recite an image forming method comprising:

(1) charging an image-bearing member by applying a voltage to a charging member that is kept in contact with an image-bearing member thereby forming a contact zone between the charging member and an image-bearing member;

(2) forming an electrostatic latent image on the charged surface of the image-bearing member;

(3) developing the latent image with a magnetic toner that is carried on a toner-carrying member, which forms a developing zone with the image-bearing member, to form a toner image; and

(4) transferring the toner image to a transfer material
"via, or not via an intermediate transfer member."

The toner-carrying member meets the developing means recited in instant claim 48.

Reference claim 44, which depends from reference claim 36, requires that the charging member have a volume resistivity that meets the resistivity range recited in instant claim 48.

Reference claim 43, which depends from reference claim 36, further requires that the charging member be a roller member that has a composition that meets the composition of the roller recited in instant claim 48. Reference claim 57, which depends from reference claim 36, requires that the transfer member come in contact with the image-bearing member via the transfer material at the time of transfer. The transfer member meets the transfer means recited instant claim 73. Reference claim 37, which depends from reference claim 36, requires that the developing step further serve as a cleaning step of collecting magnetic toner that remains on the image-bearing member after toner transfer, which meets the functional limitation of the developing means recited in instant claim 49. Reference claim 36 and reference claims 38-41, 46, 47, and 54-56, which depend from reference claim 36, further require steps that meet

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the functional language recited in instant claims 55-58, 63, 64, 68, and 70-72.

The magnetic toner recited in reference claims 35 and 36 has a weight-average particle diameter of from 3 to 10 μm , which encompasses the range of 4 to 8 μm recited in instant claim 48. The magnetic toner recited in reference claims 35 and 36 meets the compositional limitations of the magnetic toner recited in instant claim 48, but for the presence of inorganic particles, electroconductive particles, and a wax as recited in instant claim 48. However, reference claims 35 and 36 recite that the magnetic toner comprises a release agent. Reference claim 35, which also recites the magnetic toner recited in reference claim 9, recites that the release agent is present in an amount of 1 to 30 wt% based on the weight of the toner. The amount of 1 to 30 wt% overlaps the range of 1 to 20 wt% recited in instant claim 48. Moreover, according to Ohno, it is known in the art to incorporate a wax as a release agent in a toner. Ohno, col. 2, lines 62-65. Ohno discloses that a "wax has been used to provide an improved anti-offset characteristic and an improved low-temperature fixability." Col. 3, lines 3-4. Ohno teaches the use of a particular wax having a particular maximum heat absorption peak and ^{13}C -NMR spectrum. Col. 3, line 59, to col. 4, line 1. Ohno teaches that when its particular wax is

used as the release agent in a toner, the toner exhibits "good low-temperature fixability even when the toner is formed in a smaller particle size and the content of the colorant (particularly a magnetic material) is increased correspondingly." Col. 3, lines 20-24. The toner also has good anti-high-temperature offset characteristic and anti-blocking property, and flowability. Col. 3, lines 25-40, The toner provides "fixed images of good image quality." Col. 3, lines 41-44.

Reference claim 35, which recites the magnetic toner recited in reference claims 14-21, requires that the magnetic toner further comprise inorganic particles that are within the compositional limitations recited in instant claim 48. Reference claims 35, which also recites the magnetic toner recited in reference claims 22-26, requires that the magnetic toner further comprise electroconductive particles that have a volume-average particle size of less than the weight-average particle diameter of the magnetic toner. As discussed above, the magnetic toner has a weight-average particle diameter of 3 to 10 μm . Thus, based on the limitations recited in reference claims 22-26, the volume-average particle size of the electroconductive powder may be less than 3 μm , which overlaps the range of 0.8 to 3.6 μm recited in instant claim 48.

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It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Magome, to add the inorganic particles and electroconductive particles recited in reference claims 14-21 and 22-26, such that the volume-average particle size of the electroconductive particles is less than the weight-average particle size of 3 μm , to the surface of the magnetic toner particles recited in reference claims 35 and 36, such that the resultant magnetic toner comprises inorganic particles and electroconductive fine powder that are within the limitations recited in instant claim 48. It would also have been obvious to that person, in view of the subject matter recited in the claims of Magome and Ohno, to use the wax disclosed by Ohno in an amount that is within the range of 1 to 20 wt% as recited in instant claim 48 in the magnetic toner rendered obvious over the subject matter recited in the claims of Magome, and to use the resulting magnetic toner in the image forming methods recited in reference claims 35 and 36. That person would have had a reasonable expectation of successfully obtaining an image forming method that provides repeatedly many magnetic toned images that have good image quality as taught by Magome.

Magome's claims 35 and 36 do not recite that their image-bearing members are image-bearing members as recited in the instant claims.

Ohba discloses an image-bearing member comprising an electroconductive cylindrical support, a photoconductive layer comprising amorphous silicon, and a "surfacemost" layer comprising a non-single crystal material different from the photoconductive layer. The photoconductive layer has a thickness of 2 to 24 μm "to permit a low charging potential and electric field development." Col. 5, line 60, to col. 6, line 2; and col. 16, lines 1-24. Ohba discloses that the image-bearing member does not need a heater. Col. 6, lines 42-47 and 60-63. Ohba discloses that its image-bearing member is charged to have an initial potential of 450 V or less, and that the member can be uniformly charged with a charging roller. Col. 5, lines 52-55; and col. 6, lines 35-41 and 56-57. Ohba discloses that the electrostatic latent images formed on its image-bearing member can be developed with a single component conductive magnetic toner. Col. 6, lines 29-34. Ohba discloses that its image-bearing member eliminates "dark attenuation increase" and reduction of photosensitivity or resolution. Col. 5, lines 15-22. Ohba discloses that its image-bearing member has high durability and provides high contrast, high

quality images free from fog. Col. 5, lines 30-35 and 42-49. Ohba further discloses that its image-bearing member is charged to have an initial potential of 470 V or less, which meets the functional language recited in instant claims 48 and 51. Ohba further discloses that its charged image-bearing member can be imagewise exposed by a LED head to form a digital electrostatic latent image. Col. 24, lines 4-7. The LED head meets the "electrostatic latent-image forming means" recited in instant claim 48. See paragraph 5, supra.

It would have been obvious for a person having ordinary skill in the art to use Ohba's image-bearing member comprising amorphous silicon as the image-bearing member in the method rendered obvious over the subject matter recited in the claims of Magome combined with the teachings of Ohno and to charge Ohba's image-bearing member to a potential of 450 volts or less in the contact charging step recited in said method and to image-wise expose the charged image-bearing member as taught by Ohba. That person would have had a reasonable expectation of successfully obtaining an image forming method that provides digitally-obtained, high contrast, high quality images without fog for a long period of time.

Neither the claims in Magome nor the cited prior art of Ohno and Ohba discloses the use of an image-bearing member

comprising a "surfacemost" layer comprising a non-single crystal carbon hydride film as recited in instant claim 48. However, Ohba discloses that its surface layer can be amorphous carbon, etc. Col. 16, lines 22-24.

EP'470 discloses an electrophotographic photosensitive member comprising an electroconductive support, an amorphous silicon photoconductive layer, and a "surfacemost" layer comprising an amorphous carbon hydride film. The surfacemost layer has a volume resistivity of $4 \times 10^{13} \Omega \cdot \text{cm}$. EP'470, page 14, lines 43-44, and page 24, lines 15-17. EP'470 discloses that the amorphous carbon hydride film has high hardness and high durability. The film has low friction and good water repellency. Image blurriness is prevented under high humidity even when a heater is omitted in the image forming member. Page 14, lines 44-46. EP'470 also discloses that the "movement of the charge-promotion particles [in a contact-charging foam-containing roller] or other particles toward the photosensitive member [i.e., the image-bearing member] due to the mechanical friction can be suppressed." Page 6, lines 34-36; and page 14, lines 44-46.

It would have been obvious to a person having ordinary skill in the art, in view of the teachings of EP'470, to use an amorphous carbon hydride film as the surfacemost layer of the

image bearing member in the method rendered obvious over the subject matter recited in the claims of Magome combined with the teachings of Ohno and Ohba, because that person would have had a reasonable expectation of successfully obtaining an image forming method that provides high contrast, high quality images without fog and blurriness for a long period of time.

The reference claims in Magome do not recite an imaging apparatus. However, as described above, the imaging method recited in Magome combined with the teachings of Ohno, Ohba, and EP'470 recite structural elements that meet the structural elements recited in instant claims 48, 60, and 73, the functional limitation of the developing means recited in instant claim 49, and the functional language recited in claims 48, 51, 55-58, 63, 64, and 68-72. Thus, it would have been obvious to a person having ordinary skill in the art, in view of the subject matter recited in the claims of Magome combined with the teachings of Ohno, Ohba, and EP'470, to make and use an imaging apparatus as recited in the instant claims. That person would have had a reasonable expectation of successfully obtaining an imaging apparatus that provides digitally-obtained, high contrast, high quality images without fog and blurriness for a long period of time.

Applicants' arguments filed on Nov. 4, 2004, have been fully considered but they are not persuasive.

Applicants assert that "if it requires the disclosure of three patents to remedy the defects in the claims of Magome'452, it cannot be said that the present claims are a mere obvious variation. The present claims are not a mere unjustified extension of Magome'452 since they would be restricted out of Magome if presented therein."

However, the reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991); and MPEP 2145 V. Thus, for the reasons discussed in the rejection, the rejection stands.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through

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JLD

Nov. 12, 2004

Janis L. Dote
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PRIMARY EXAMINER
GROUP ~~1530~~
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